

Serial No. 10/672,165

PATENT
Docket No. 72145.012400/US**REMARKS**

In this response, no claims have been amended, claims 15-20 have been canceled without prejudice, and new claims 21-26 have been added. Thus, claims 1-14 and 21-26 remain pending. The office action issued by the Examiner has been carefully considered.

Applicants confirm the prior telephone election of claims 1-14 for prosecution.

Applicants have submitted the requested serial number by virtue of the above amendment to the specification, and have also corrected a minor typographical error in the title to the related application.

Claims 1-2 have been rejected under 35 USC sec. 102(b) as being anticipated by Buynoski (U.S. Patent No. 4,761,386). Anticipation requires that every element of a claim be disclosed in a single prior art reference.

Applicants' independent claim 1 recites a chip scale package. Applicants' specification (par. 0005) describes a chip scale package as a package for an integrated circuit that is substantially the size of the integrated circuit or of a flip chip. In contrast, Buynoski does not describe a chip scale package. Buynoski rather is directed to the use of a conductive passivating coating over metal bonding pads (see Abstract). Further, the practice of Buynoski's technique does not inherently require the use of a chip scale package.

In addition, Applicants' independent claim 1 recites a solder ball pad. In contrast, Buynoski describes the use of wire bonding (see col. 4, l. 9-25). Wire bonding is not the same as the use of a solder ball, and Buynoski only describes the use of a wire bonding pad. The use of a solder ball pad is also not inherent in Buynoski's approach.

Boutaghou et al. (U.S. Patent No. 6,296,552), Sugizaki (U.S. Patent No. 6,437, 434), and Peters et al. (U.S. Patent No. 6, 465, 811) were cited as disclosing an IC comprising a moat surrounding a solder ball pad. Similarly as discussed above, none of these references

Serial No. 10/672,165

PATENT
Docket No. 72145.012400/US

discloses a chip scale package as recited in claim 1. Further, Boutaghou teaches moats that surround burnishing pads, which are not solder ball pads as recited in claim 1.

Boutaghou, Sugizaki, and Peters fail to teach other features recited in applicants' claims, but applicants request that the Examiner provide the full basis for any rejection, with specific references to relevant portions of any of these references, that the Examiner may be relying upon so that applicants may properly understand the Examiner's position and fully respond thereto.

Claims 3-14 have been rejected under 35 USC sec. 103(a) as being unpatentable over Buynoski. Applicants independent claim 13 recites a polymer collar around the solder ball. Similarly as discussed above, Buynoski teaches the use of wire bonding instead of a solder ball. Further, Buynoski does not teach the use of a polymer collar, even if only on a wire bond.

An obviousness rejection requires that there be some suggestion in the prior art to make a combination. The Examiner has cited the use of a photo-imageable polymer film. However, a photo-imageable polymer is not a conductive layer. Buynoski teaches the use of a conducting layer on top of the wire bond pad, and Buynoski's approach requires that this layer be conducting.

One of skill in the art would select a conducting material to use for the conducting layer in which Buynoski forms a moat. Since the polymer film is not conducting, one of skill in the art would not combine the photo-imageable polymer with Buynoski's wire bond. The Examiner's combination of the polymer film with Buynoski would result in a non-functioning device since Buynoski's wire bond would be insulated from its bonding pad. This combination cannot support an obviousness rejection of applicants' claim 13.

The Examiner has explicitly stated that U.S. Patent No. 6,578,755 is admitted prior art. However, the Examiner should note that this patent is described by applicants' specification in paragraph 0041 as being assigned to the assignee of the present invention. Applicants believe that the arguments above do not require a determination for this response of whether the subject matter in the foregoing patent was owned by or subject to an obligation of assignment to the

Serial No. 10/672,165

PATENT
Docket No. 72145.012400/US

same assignee as the claimed invention at the time the invention was made. However, applicants reserve the right to later assert this position if it becomes necessary in a future response to remove 35 USC secs. 102(e), (f) or (g)/103 as a basis for use of this reference. It is not clear here to applicants how the Examiner may be relying upon the '755 patent. Applicants do mention in paragraph 0006 of applicants' specification that the use of a polymer collar around a solder ball in a wafer-level CSP is well known. However, this mention itself does not satisfy the deficiencies of the prior art discussed above.

Applicant's dependent claim 14 recites that the moat prevents flow of liquefied polymer collar. The Examiner has implied the combination of a polymer collar with Buynoski. However, Buynoski's moat is provided to provide electrical isolation of the pad (col. 3, l. 27:29), and not to limit the flow of any liquid. Buynoski does not describe any materials as flowing to the moat during heating.

Moreover, wire bond 26 of Buynoski's Fig. 2 is shown positioned below the height of moat 24. Even if it were present, there is no motivation to use a moat for capturing liquefied polymer in Buynoski. For the sake of argument, even if a polymer collar were used, any initial flow from the collar would stay around the lower region of wire bond 26, and not flow to moat 24. Thus, nothing in Buynoski suggests the combination of a flow-preventing moat with a polymer collar.

The Examiner also states that the Buynoski moat eliminates "any liquid that formed." However, Buynoski's references to moisture (col. 2, l. 64 to col. 3, l. 4; and col. 4, l. 28-32) is with respect to moisture penetration under the passivation at the bonding pad region. The moat itself is not described as restricting this moisture by capturing or containing it. Thus, the Buynoski moat is not described as isolating any liquid flow.

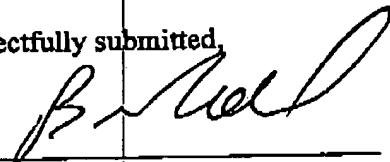
Applicants' claims 2-12 and 14, along with newly-added claims 21-26, depend, directly or indirectly, from independent claims 1 and 13 and are believed allowable for at least the reasons discussed above.

Serial No. 10/672,165

PATENT
Docket No. 72145.012400/US

In view of the above, Applicants respectfully request reconsideration of this application and the allowance of all pending claims. It is respectfully submitted that the Examiner's rejections have been successfully traversed and that the application is now in order for allowance. Applicants believe that the Examiner's other arguments not discussed above are moot in light of the above arguments, but reserve the later right to address these arguments. Accordingly, reconsideration of the application and allowance thereof is courteously solicited.

Respectfully submitted,



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Bruce T. Neel
Reg. No. 37,406

Customer Number 33717
GREENBERG TRAURIG, LLP
2450 Colorado Avenue, Suite 400E
Santa Monica, CA 90404
Phone: (602) 445-8339
Fax: (602) 445-8100
E-mail: neelb@gtlaw.com

phx-ts1\1494180v03